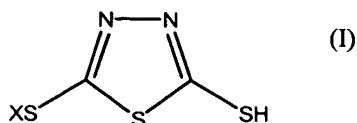
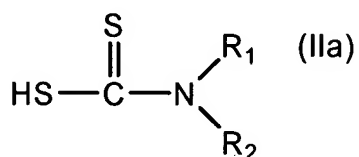


WE CLAIM:

1. An additive which is a reaction product of a 1,3,4-thiadiazole of formula (I):



wherein X is hydrogen or a C₁-C₂₀ alkyl group
and a dithiocarbamic acid of formula (IIa):



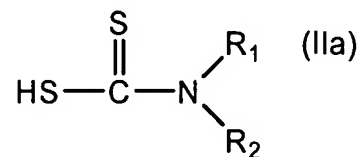
wherein R₁ and R₂ are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R₁ and R₂ together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom and wherein the heterocyclic ring is optionally substituted with alkyl groups wherein the total number of carbon atoms from the heterocyclic ring alkyl groups is from 4 to 40,

wherein the reaction product is produced by reacting the dithiocarbamic acid of formula (IIa) with the 1,3,4-thiadiazole of formula (I) and the oxidizing agent is then added; or

an isomer of said reaction product.

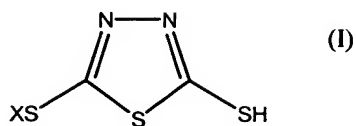
2. The additive of claim 1, wherein the 1,3,4-thiadiazole is 2,5-dimercapto-1,3,4-thiadiazole.
3. The additive of claim 1, wherein R₁ and R₂ are the same and are selected from the group consisting of ethyl, isopropyl and butyl.
4. The additive of claim 1, wherein R₁ and R₂ together form a piperazinyl ring.
5. The additive of claim 1, wherein the oxidizing agent is hydrogen peroxide.
6. The additive of Claim 1, further comprising a diluent.

7. The additive of claim 1, wherein the dithiocarbamic acid of formula (IIa) is synthesized *in situ* by reacting carbon disulfide with the secondary amine of the formula NHR_1R_2 , wherein R_1 and R_2 are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R_1 and R_2 together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom.
8. A curable polymer composition comprising a major amount of at least one halogenated polymer and at least one additive of claim 1.
9. The curable polymer composition of Claim 8, wherein the halogenated polymer is a chlorinated polymer.
10. The curable polymer composition of Claim 9, wherein the chlorinated polymer is selected from the group consisting of homopolymers of epichlorohydrin, copolymers of epichlorohydrin and ethylene oxide or propylene oxide, polychloroprene, chlorinated polyolefins, chlorosulfonated polyolefin, polychloroalkylacrylates, chlorobutyl rubber and mixtures thereof.
11. The curable polymer composition of Claim 10, wherein the chlorinated polyolefins is chloropolyethylene.
12. A method of preparing the additive of claim 1, which comprises reacting a dithiocarbamic acid of formula (IIa):



wherein R_1 and R_2 are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R_1 and R_2 together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen heteroatom and wherein the heterocyclic ring is optionally substituted with alkyl groups wherein the total number of carbon atoms from the heterocyclic ring alkyl groups is from 4 to 40

with a 1,3,4-thiadiazole of formula (I):



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wherein X is hydrogen or a C₁-C₂₀ alkyl group,

in the presence of an oxidizing agent, to form a reaction product.

10 13. The process of claim 12, wherein the 1,3,4-thiadiazole is 2,5-dimercapto-1,3,4-thiadiazole.

14. The process of claim 12, wherein R₁ and R₂ are the same and are selected from the group consisting of ethyl, isopropyl and butyl.

15 15. The process of claim 12, wherein R₁ and R₂ together form a piperazinyl ring.

16. The process of claim 12, wherein the oxidizing agent is hydrogen peroxide.

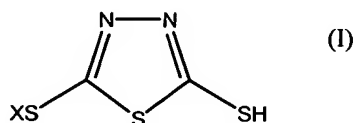
17. The process of Claim 12, further comprises adding a diluent to the reaction product.

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18. The process of Claim 12, wherein the dithiocarbamic acid of formula (II) is synthesized *in situ* by reacting carbon disulfide with the secondary amine of the formula NHR₁R₂, wherein R₁ and R₂ are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R₁ and R₂ together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom.

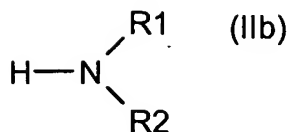
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19. An additive which is a reaction product of a 1,3,4-thiadiazole of formula (I):



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wherein X is hydrogen or a C₁-C₂₀ alkyl group and an amine of formula (IIb):



wherein R₁ and R₂ are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R₁ and R₂ together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom and wherein the heterocyclic ring is optionally substituted with alkyl groups wherein the total number of carbon atoms from the heterocyclic ring alkyl groups is from 4 to 40,

wherein the reaction product is produced by reacting the amine of formula (IIb) with the 1,3,4-thiadiazole of formula (I), and the oxidizing agent is then added; or an isomer of said reaction product.

20. The additive of claim 19, wherein the 1,3,4-thiadiazole is 2,5-dimercapto-1,3,4-thiadiazole.

21. The additive of claim 19, wherein R₁ and R₂ are the same and are selected from the group consisting of ethyl, isopropyl, and butyl.

22. The additive of claim 19, wherein R₁ and R₂ together form a piperazinyl ring.

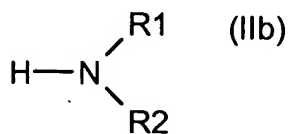
23. The additive of claim 19, wherein the oxidizing agent is hydrogen peroxide.

24. The additive of claim 19, further comprising a diluent.

25. The additive of claim 19, wherein R₁ and R₂ in the amine of formula NHR₁R₂ are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R₁ and R₂ together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom and wherein the heterocyclic ring is optionally substituted with alkyl groups wherein the total number of carbon atoms from the heterocyclic ring alkyl groups is from 4 to 40.

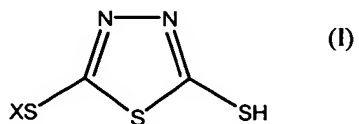
26. A curable polymer composition comprising a major amount of at least one halogenated polymer and at least one additive of claim 19.

27. The curable polymer composition of claim 26, wherein the halogenated polymer is a chlorinated polymer.
28. The curable polymer composition of claim 27, wherein the chlorinated polymer is selected from the group consisting of homopolymers of epichlorohydrin, copolymers of epichlorohydrin and ethylene oxide or propylene oxide, polychloroprene, chlorinated polyolefins, chlorosulfonated polyolefin, polychloroalkylacrylates, chlorobutyl rubber and mixtures thereof.
29. The curable polymer composition of claim 28, wherein the chlorinated polyolefins is chloropolyethylene.
30. A method of preparing the additive of claim 19, which comprises of reacting an amine of formula (IIb):



wherein R₁ and R₂ are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R₁ and R₂ together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom and wherein the heterocyclic ring is optionally substituted with alkyl groups wherein the total number of carbon atoms from the heterocyclic ring alkyl groups is from 4 to 40,

with a 1,3,4-thiadiazole of formula (I):



wherein X is hydrogen or a C₁-C₁₀ alkyl group,

in the presence of an oxidizing agent to form a reaction product.

31. The process of claim 30, wherein the 1,3,4-thiadiazole is 2,5-dimercapto-1,3,4-thiadiazole.
32. The process of claim 30, wherein R_1 and R_2 are the same and are selected from the group consisting of ethyl, isopropyl and butyl.
- 5 33. The process of claim 30, wherein R_1 and R_2 together form a piperazinyl ring.
34. The process of claim 30, wherein the oxidizing agent is hydrogen peroxide.
- 10 35. The process of Claim 30, further comprises adding a diluent to the reaction product.
36. The process of Claim 30, wherein wherein R_1 and R_2 in the amine of formula (IIb) are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R_1 and R_2 together form 3- to 8-membered heterocyclic ring structure which optionally contains an additional nitrogen or oxygen heteroatom and wherein the heterocyclic ring is optionally substituted with alkyl groups wherein the total number of carbon atoms from the heterocyclic ring alkyl groups is from 4 to 40.
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